

## CLAIMS

1. A method of fabricating thin-film semiconductor, comprising:

5 a scanning irradiation step of, in order to form a polycrystalline silicon film on a surface of a substrate (9), focusing first pulse laser light (22) having a visible wavelength into a line shape (33) having an intensity distribution of an approximately Gaussian shape in a width direction on the surface of said substrate and applying said light such that said line shape is shifted in said width direction;

10 an edge processing step of, after performing said scanning irradiation step in one position in one direction, applying second pulse laser light having an ultraviolet wavelength to an end region of an edge parallel to said width direction of a region (36) having undergone the scanning irradiation; and

15 a step of applying said scanning irradiation step again to cover a region (39) that is adjacent to the region (36) covered by said scanning irradiation step as well as overlaps said end region having undergone said edge processing step.

2. The method of fabricating thin-film semiconductor of claim 1, wherein said edge processing step is performed by focusing said second pulse laser light into an elongate shape (38) which can totally cover said edge for irradiation.

20 3. The method of fabricating thin-film semiconductor of claim 1, wherein said edge processing step is performed by focusing said second pulse laser light into a rectangle shape (41) to scan along said edge.